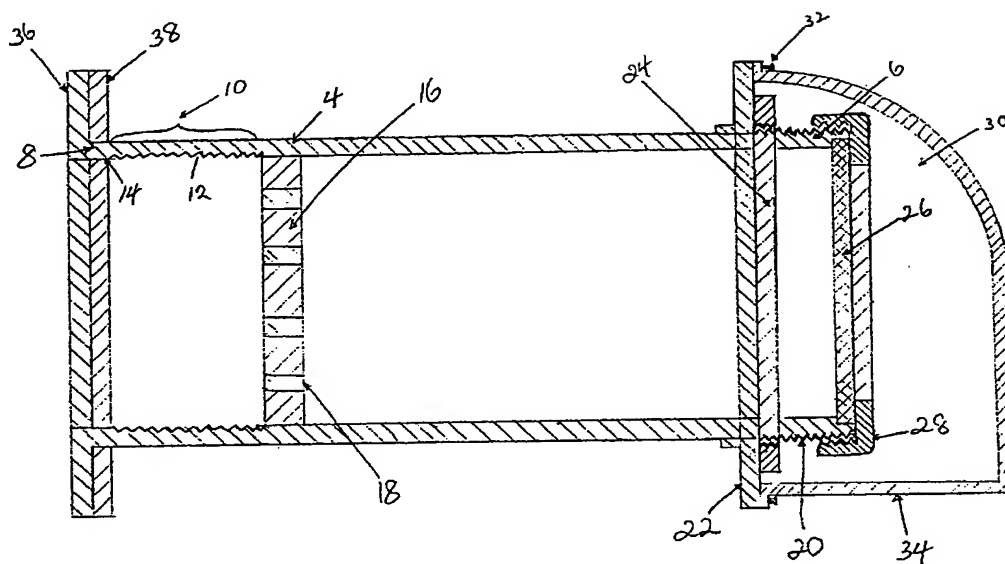




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(51) Int.Cl.<sup>6</sup> F24F 7/00  
(54) **EVENT D'AERATION MURAL**  
(54) **WALL VENT**



(57) Cette invention concerne un dispositif d'aération monté dans un mur extérieur et comportant un filetage intérieur du côté intérieur. Un épaulement est prévu dans le dispositif d'aération. Un capuchon à visser dans le dispositif prend appui contre l'épaulement lorsqu'il est en position fermée. Le capuchon et l'épaulement comportent des ouvertures permettant la circulation d'air à travers le dispositif lorsque le capuchon est ouvert, aucune circulation d'air n'étant possible lorsque le capuchon est fermé. Celui-ci peut être partiellement ouvert pour permettre une certaine circulation d'air. L'objet de l'invention est facile à installer et à entretenir. Il peut être laissé ouvert lorsque le bâtiment est inoccupé, sans compromettre la sécurité de celui-ci.

(57) An air vent is installed in an outside wall and contains a screw thread on an inner surface of an inner end. An abutment is located inside the vent. A cap is shaped to screw into the vent and rests against the abutment when it is in a closed position. The cap and the abutment contain openings that permit air to flow through the vent when the cap is open and prevent air from flowing through the vent when the cap is closed. The cap can be partially open so that some air flows through the vent. The vent can be easily installed and maintained. It can be left open when the building is unoccupied, without any sacrifice in security.



This invention relates to an air vent and more particularly to an air vent that is located in an outside wall of a building.

Air vents are known but previous air vents  
5 are too drafty; or, they are not adjustable; or, they cannot be closed; or, they are too expensive to install; or, they are too expensive to manufacture; or, they provide a security risk; or, they can jam with snow or ice during the winter; or, they cannot be  
10 easily opened and closed; or, they require an electrical connection; or, they are expensive to maintain; or, they cannot be readily installed in existing homes.

It is an object of the present invention to  
15 provide an air vent that is inexpensive, simple to install and can be easily opened and closed.

An air vent for use in an outside wall has an elongated passage extending through said wall. The passage has an outer end and an inner end. The inner  
20 end has an end portion with a circular cross-section and a screw thread on an inner surface thereon. The screw thread extends from said inner end toward said outer end. A cap is sized to fit within said end portion, the cap having an outer surface with a screw  
25 thread thereon corresponding to the screw thread of said passage. The cap has a base and a top portion with a plurality of first openings extending from said base to said top portion. The passage contains an abutment which blocks the passage except for a  
30 plurality of second openings therein, said passage being located so that a base of said cap will rest against said abutment when said cap is in a closed position within said passage. There are sealing means between said cap and said abutment and said first and

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second openings are arranged relative to one another so that when said cap is in a closed position in said passage, said sealing means prevents air from flowing between said first and second openings. The second  
5 openings are accessible to said first openings by air in said passage when said cap is in an open position in said passage. The degree of accessibility is adjustable by further opening and closing the cap.

In the drawings:

10 Figure 1 is a sectional side view of an air vent with a cap removed;

Figure 2 is a sectional side view of a cap;

Figure 3 is an end view of said cap;

15 said vent.  
Figure 4 is an end view of an inner end of

In Figure 1, an air vent 2 has an elongated passage 4. The passage is cylindrically-shaped and extends through an outside wall (not shown) from inside to outside. The passage has an outer end 6 and  
20 an inner end 8, the inner end 8 having an end portion 10 with a circular cross-section and a screw thread 12 on an inner surface 14 thereof. The screw thread 12 extends from the inner end 8 toward the outer end 6. The passage contains an abutment 16 which blocks the  
25 passage 4 except for second openings 18 therein.

The outer end 6 of the passage 4 has a screw thread 20 on an outer surface thereof. A flange 22 is designed to fit over the outer end 6 and to abut against an outside surface (not shown) of the wall  
30 (not shown) and to be held in place by a lock nut 24. The lock nut 24 is turned onto the screw thread 20. A screen 26 fits within the outer end 6 and is held in place by a nut 28 which is turned onto the screw thread 20. A rain cap 30 is secured to the flange 22

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by a screw 32. The rain cap extends downward and outward from the screw 32 to cover the outer end 6. A bottom 34 of the rain cap 30 is open.

The inner end 8 is surrounded by a flange 36 and a gasket 38 is located on an outer side of the flange 36.

In Figures 2 and 3, there is shown a cap 40 which has a base 42 and a top portion 44. The base contains a plurality of first openings 46 which are located near a centre 48 of said base. The first openings 46 are surrounded by sealing means 50. The sealing means could be any suitable seal and could be separate from the base 42 or molded as an integral part of said base. For example, the sealing means 50 could be made of rubber.

The top portion has a screw thread 52 thereon, which corresponds to the screw thread 12 of the passage 4. At an end opposite to the base 42, there is located a handle 54 for turning the cap to an open or closed position when the screw thread 52 is interlocked with the screw thread 12. Between the handle 54 and the screw thread 44 is a band 56. The first openings 46 extend from the base 42 through the cap 40 and radially outward from the band 56. Between the band 56 and the screw thread 44, there is located an O-ring 58. The purpose of the O-ring is to seal an area between the cap 40 and the location of the O-ring 58 and the inner surface 14 of the passage 4. Thus, outside air will be prevented from travelling between the corresponding screw threads 12, 52 to the inside. Instead, outside air will travel through the openings 46 when the cap is in an open position within the passage 4.

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In Figure 4, the arrangement of the second openings 18 in the abutment 16 is shown. It can be seen that the second openings 18 are located near a periphery 60 of the abutment 16. The first openings 46 and the second openings 18 are located relative to one another so that when the cap 40 is in a closed position within the end portion 10 of the passage 4, the base 42 will rest against the abutment 16 and the sealing means 50 will prevent outside air from passing through the second openings 18 to the first openings 46. Preferably, the sealing means 50 is located so that when the cap is in a closed position, the sealing means 50 covers the second openings 18. In this arrangement, when the cap is in a closed position within the passage 4, outside air cannot pass through the second openings 18. If the sealing means were located so that it did not block the second openings 18 when the cap was in a closed position but only prevented air from travelling from the second openings 18 to the first openings 46, some air might enter the inside between the screw threads 12, 52 and around the O-ring 58.

To install the air vent of the present invention, a circular opening of suitable size must be made in an outside wall where the vent is to be installed. The outer end 6 is then inserted through the circular opening in the outside wall until the gasket 38 rests against an inside surface (not shown) of the wall. In this position, the outer end 6 will protrude slightly beyond the outer surface of the wall (not shown). The flange 22 is then inserted over the screw thread 20 and held in place by the lock nut 24 which is tightened to pull the passage 4 outward so that there is some pressure by the flange 36 on the

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gasket 38. Next, the screen 26 and nut 28 are installed and finally the ring cap is installed using the screw 32. Once the vent has been installed, the cap can be inserted into the end portion 10 and moved to a closed position or a fully open position or a position between these two extremes. For example, if the cap is only loosened slightly from the closed position, less air will flow than if the cap is fully open so that the sealing means no longer contacts the abutment 6. As the openings 46 located in the band 56 extend radially outward within said band, the air flow from the vent is directed parallel to an inner surface of the wall and is less likely to cause users of the vent to feel a draft. If maximum air is required, the cap could be removed entirely from the passage, but this is not recommended. While the air vent could be made in any convenient size, it can be seen that generally the air vent is relatively small and is about the same size or slightly smaller than a conventional domestic dryer vent. Unlike windows, which can create a security problem when they are left open, the air vent of the present invention can be left in a closed, partially open or fully open position without incurring any security risk whatsoever.

While only one vent is shown and described, it will usually be desirable to have two vents installed in a residence, one in one outside wall and one in an opposing outside wall. Usually, one wall in which a vent is installed will be in the direction of the prevailing wind. In this manner, outside air can enter a building through one vent and stale air can exit the building through the vent in the opposing wall.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An air vent for use in an outside wall, said vent comprising an elongated passage extending through said wall, said passage having an outer end and an inner end, said inner end having an end portion with a circular cross-section and a screw thread on an inner surface thereof, said screw thread extending from said inner end toward said outer end, a cap sized to fit within said end portion, said cap having an outer surface with a screw thread thereon corresponding to said screw thread of said passage, said cap having a base and a top portion, with a plurality of first openings extending from said base to said top portion, said passage containing an abutment which blocks the passage except for a plurality of second openings therein, said passage being located so that a base of said cap will rest against said abutment when said cap is in a closed position within said passage, there being sealing means between said cap and said abutment said first and second openings being arranged relative to one another so that when said cap is in a closed position in said passage, said sealing means prevents air from flowing between said first and second openings, said second openings being accessible to said first openings by air in said passage when said cap is in an open position in said passage, the degree of accessibility being adjustable by further opening or closing the cap.

2. An air vent as claimed in Claim 1 wherein the first openings in the top portion of the cap extend radially outward from said cap.

3. An air vent as claimed in Claim 2 wherein the first openings are located near a centre of said base.

4. An air vent as claimed in Claim 3 wherein the second openings are located near a periphery of said abutment.

5. An air vent as claimed in Claim 4 wherein the sealing means is located on said cap and said sealing means blocks said second openings when said cap is in a closed position relative to said abutment.

6. An air vent as claimed in Claim 5 wherein there is a flange located at said inner end of said passage, said flange being affixed to said passage, said outer end of said passage having a screw thread on an outer surface thereof, said screw thread having an outside diameter that is slightly smaller than a remainder of said passage, a second flange that is sized to fit over said outer screw thread, said flange being held in position by a lock nut that contains a screw thread corresponding to said outer screw thread said outer end being shaped to receive a screen that extends completely across the passage, said screen being held in place by a nut that has screw threads corresponding to the second screw thread.

7. An air vent as claimed in Claim 6 wherein there is a rain cap affixed to said outer flange, said rain cap being open on the bottom and extending over said outer end of said passage.



ABSTRACT

An air vent is installed in an outside wall and contains a screw thread on an inner surface of an inner end. An abutment is located inside the vent. A  
5 cap is shaped to screw into the vent and rests against the abutment when it is in a closed position. The cap and the abutment contain openings that permit air to flow through the vent when the cap is open and prevent  
10 air from flowing through the vent when the cap is closed. The cap can be partially open so that some air flows through the vent. The vent can be easily installed and maintained. It can be left open when the building is unoccupied, without any sacrifice in security.

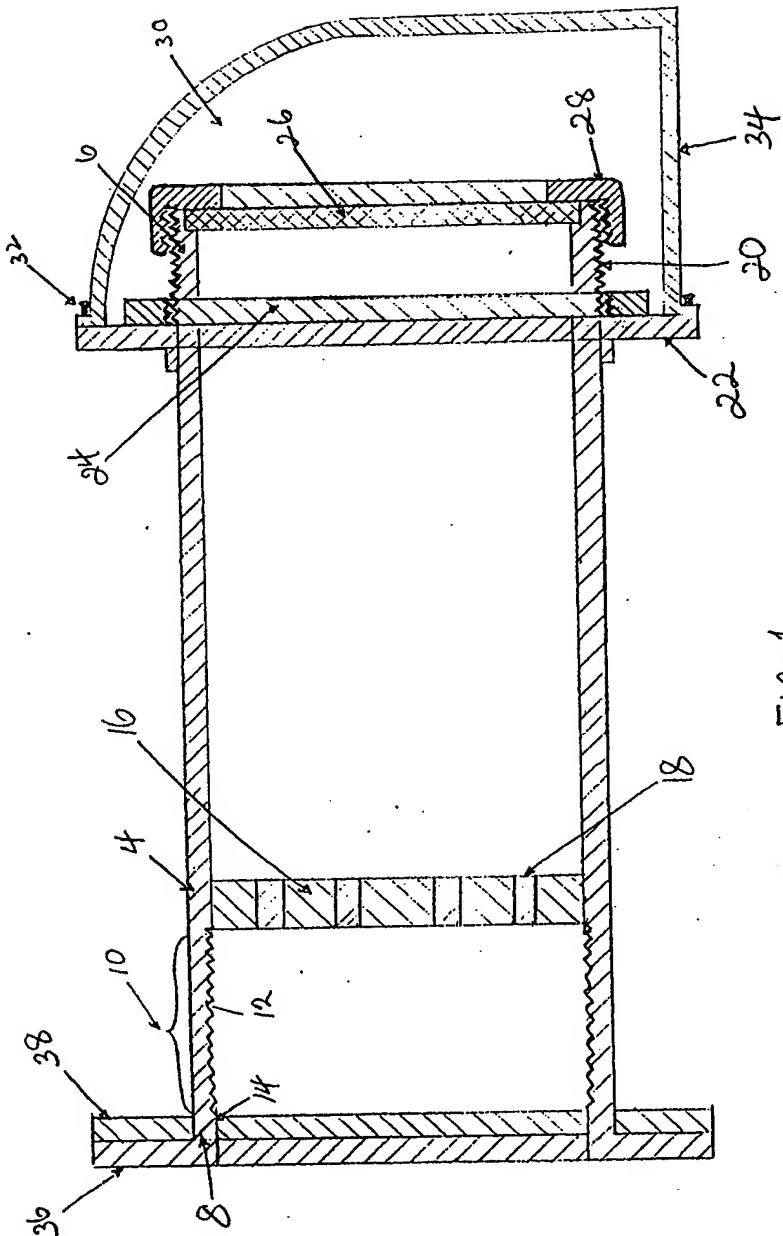


FIG. 1

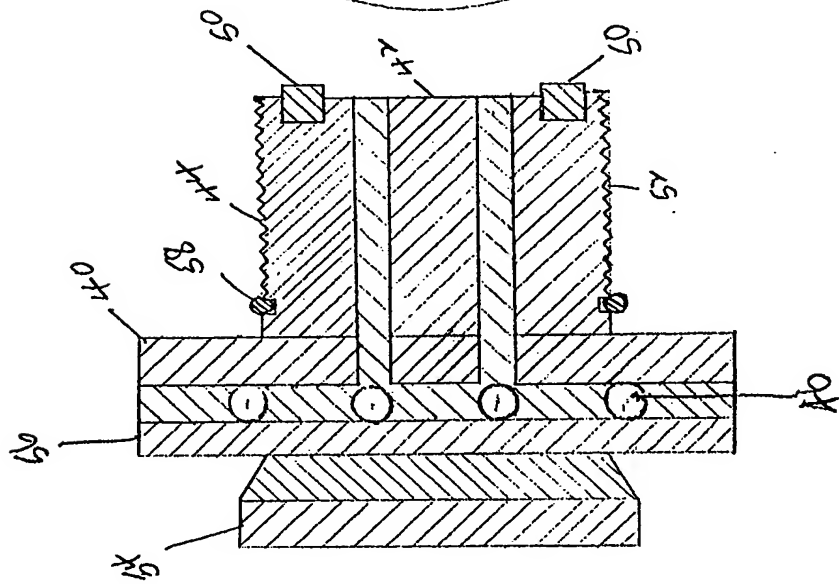


FIG. 2

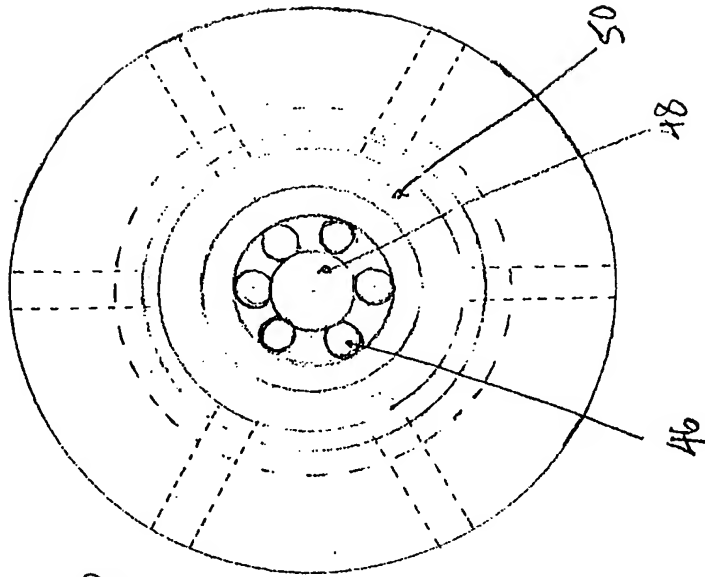


FIG. 3

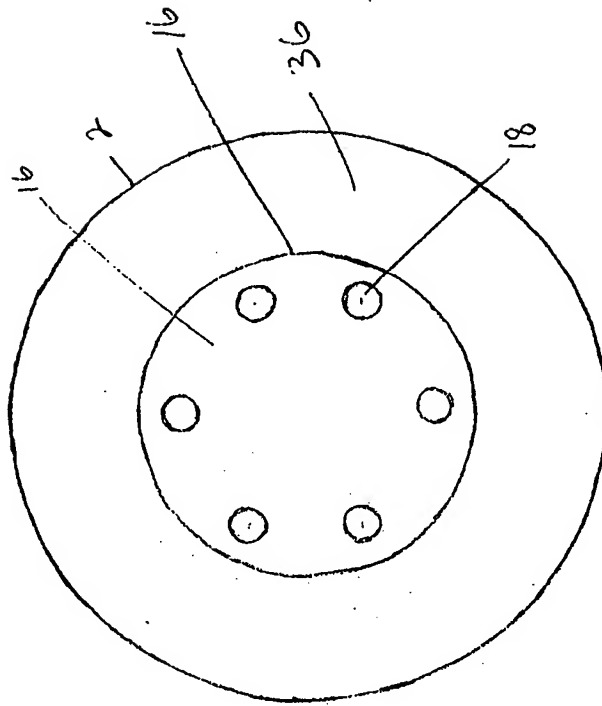


FIG. 4